

# Briggs & Stratton OPERATING AND MAINTENANCE INSTRUCTIONS MODELS

## 243431 to 243434

### IN THE INTEREST OF SAFETY, DO NOT RUN ENGINE AT EXCESSIVE SPEEDS

Operating an engine at excessive speeds increases the hazard of personal injury. **DO NOT TAMPER WITH PARTS WHICH MAY INCREASE THE GOVERNED SPEED.**

For rotary lawnmower safety, USA Standard Safety Specifications for Power Lawn Mowers specify a maximum blade tip speed of 19,000 feet per minute, primarily to reduce the hazard from thrown objects.

Rotary lawnmower manufacturers select the governed top speed of the engine based on the length and design of the cutter blade and design of other mower parts.

All rotary lawnmowers should be checked for conformance to the USA Standard Safety Specifications for Power Lawn Mowers on blade tip speed, if the engine is repaired or replaced, or if mower parts are changed.

Dirt and grass clippings, or other debris, in cooling fins or governor parts can affect engine speed. See cleaning instructions in Section 3.

### CAUTION

TO PREVENT ACCIDENTAL STARTING always remove the spark plug before working on the engine or equipment driven by the engine or remove cable from spark plug and insert terminal in V-notch in cylinder head cover.

DO NOT RUN THE ENGINE IN AN ENCLOSED AREA. Exhaust gases contain carbon monoxide, an odorless and deadly poison.

DO NOT FILL GASOLINE TANK WHILE ENGINE IS RUNNING. Spilling gasoline on a hot engine may cause a fire or explosion.

## Section 1

## BEFORE STARTING

READ THE OPERATING INSTRUCTIONS OF  
THE EQUIPMENT THIS ENGINE POWERS

- 1 **FILL CRANKCASE WITH OIL** — Use a high quality detergent oil classified "For Service SC or SD or MS". Nothing should be added to the recommended oil.

**SUMMER**  
(Above 40° F.)  
Use SAE 30

If not available,  
Use SAE 10W-30  
or  
SAE 10W-40

**WINTER**  
(Under 40° F.)  
Use SAE 5W-20 or SAE 5W-30

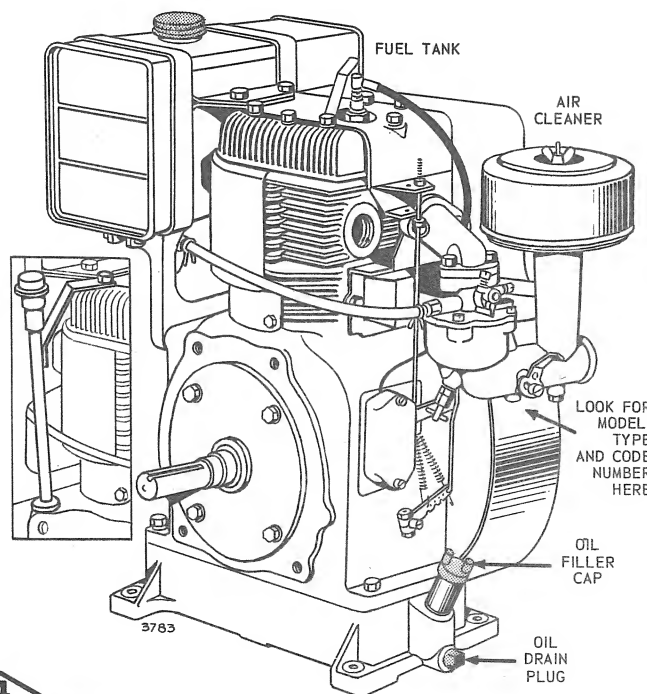
If not available,  
Use SAE 10W or SAE 10W-30  
Below 0° F.,  
Use SAE 10W or SAE 10W-30  
Diluted 10% with Kerosene

**DIRECTIONS:** Place the engine level. Remove oil filler plug or Oil-Minder. FILL THE OIL SUMP TO OVERFLOWING or to the FULL mark on dipstick. Pour slowly. Capacity 4 pints.

**EXTENDED OIL FILL. (Optional)** Remove cap and dipstick. When checking oil level push dipstick assembly firmly but slowly until cap bottoms on tube. Do not overfill. Dipstick assembly must be pushed fully into tube at all times when engine is operating.

- 2 **FILL FUEL TANK** — Use clean, fresh, lead-free or leaded "regular" grade automotive gasoline. Fill tank completely!

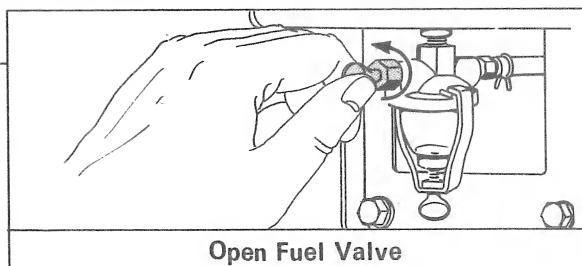
DO NOT MIX OIL WITH GASOLINE.



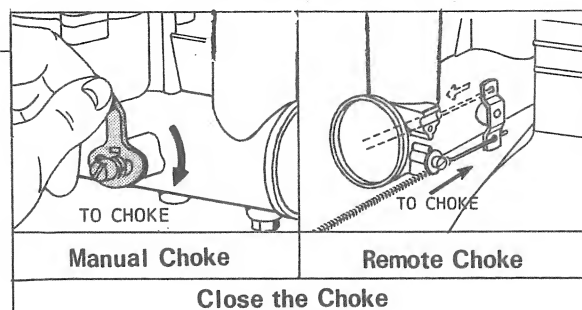
**BRIGGS & STRATTON CORP.**  
Milwaukee, Wisconsin 53201

## 1 OPEN FUEL VALVE

**CAUTION:** ALWAYS KEEP HANDS AND FEET CLEAR OF MOWER BLADE OR OTHER ROTATING MACHINERY.



## 2 CLOSE THE CHOKE — Engine may be equipped with manual or remote choke.

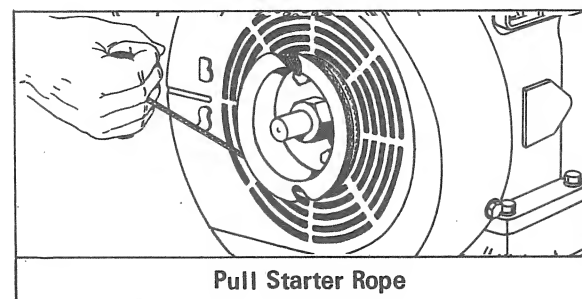


## 3 START ENGINE — Engine may be equipped with rope or electric starter.

### a. Rope Starter

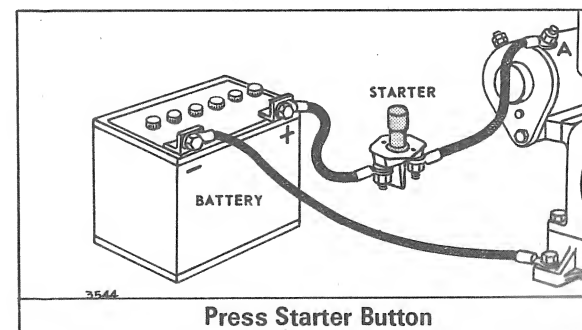
Place knot in pulley notch and wind rope around pulley in a clockwise direction. Pull rope with choke closed to prime the engine. Open choke slightly and repeat operation.

After engine warms up open choke gradually until engine runs smoothly with choke wide open (counter-clockwise position).



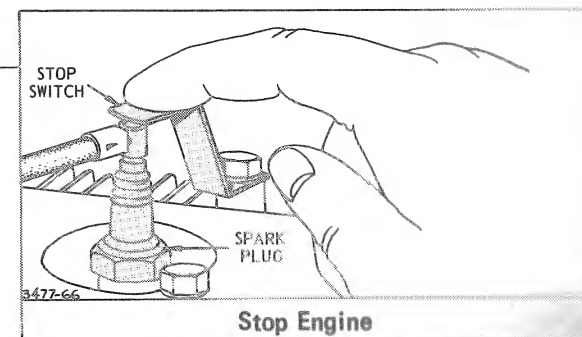
### b. 12 Volt D.C. Electric Starter

Press starter button on powered equipment. When engine starts, open choke gradually.



## 4 TO STOP ENGINE

Push the stop switch against end of spark plug, or turn off ignition switch on equipment.

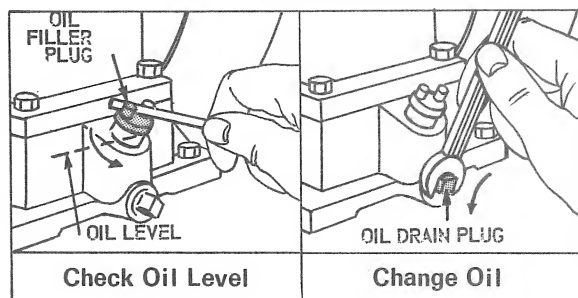


## 1 CHECK OIL LEVEL

Check before starting and after every 5 hours of operation. BE SURE OIL LEVEL IS MAINTAINED.

## 2 CHANGE OIL (Crankcase)

Change oil after first 5 hours of operation. Thereafter change oil every 25 hours of operation. Remove the oil drain plug. Drain oil while engine is warm. Remove oil filler cap or plug and refill with new oil. Replace oil filler cap or plug. Add oil regularly after each 5 hours of operation.



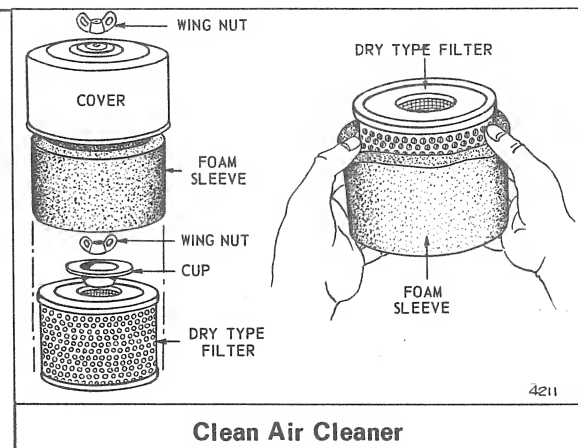
## 3 SERVICING HEAVY DUTY AIR CLEANER

Clean and re-oil foam pre-cleaner at 3 month intervals or every 25 hours, whichever occurs first.

1. Remove wing nut and cover.
2. Remove foam pre-cleaner element by sliding it up off of the paper cartridge.
3. A - Wash foam in liquid detergent and water.  
B - Squeeze dry.  
C - Oil with one ounce engine oil. Squeeze to distribute oil evenly.
4. Assemble to paper cartridge. Reassemble cover and wing nut. Screw wing nut down tight.

Yearly or every 100 hours, whichever occurs first, remove paper cartridge. Clean by tapping gently on flat surface. If very dirty, replace cartridge, or wash in liquid detergent and water. Rinse until water remains clear. Cartridge must be air dried thoroughly before using.

**NOTE:** Service more often under dusty conditions.



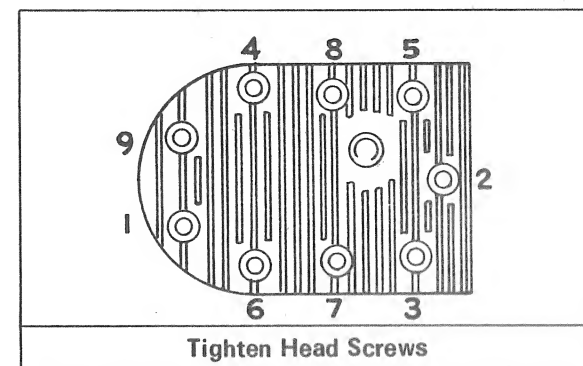
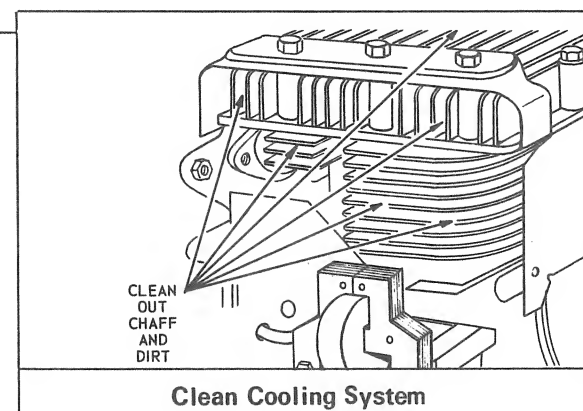
## 4 CLEAN COOLING SYSTEM

Grass or chaff may clog cooling system after prolonged service in cutting dry grasses or hay. Continued operation with a clogged cooling system causes severe overheating and possible engine damage. Remove blower housing and clean regularly.

## 5 CLEAN COMBUSTION CHAMBER every 100-300 hours of operation. If the engine operates at constant speed and at relatively constant load, the use of regular automotive fuels results in a gradual build-up of lead deposits in the combustion chamber.

This causes the engine to lose power and prevents the valves from seating properly. Removing the deposits is easy and will pay big dividends in reliability and increased valve life.

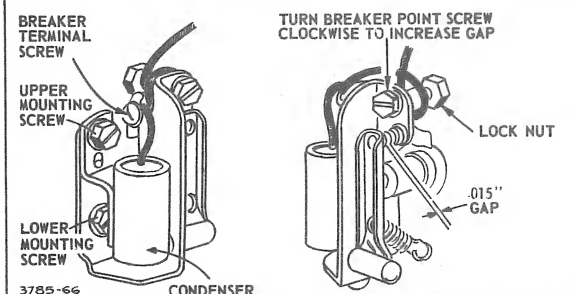
1. Remove cylinder head screws.
2. Turn crankshaft until piston is at top of cylinder bore and both valves are closed. Scrape and wire brush the lead and carbon deposits from cylinder head and combustion chamber.
3. Re-use cylinder head gasket only if in good condition. Replace cylinder head. Turn each screw in with wrench until screw head is lightly seated.
4. Use socket wrench with 6 inch handle and turn all screws 1/4 turn. Tighten screws in sequence illustrated. Run engine approximately 5 minutes and re-tighten all screws approximately 1/4 turn.



## 6 CLEAN AND ADJUST CONTACT POINTS

Remove cover. Clean points with a carborundum contact point stone. Then insert a hard finished card or piece of paper and close and open points. The paper will absorb any dirt or filings on the points. Adjust breaker points as follows:

- Rotate crankshaft until points open to widest gap.
- Loosen lock nut illustrated below until it is just snug.
- Rotate breaker point screw to obtain .020" gap.
- When gap is .020" tighten locknut.
- Replace breaker box cover.



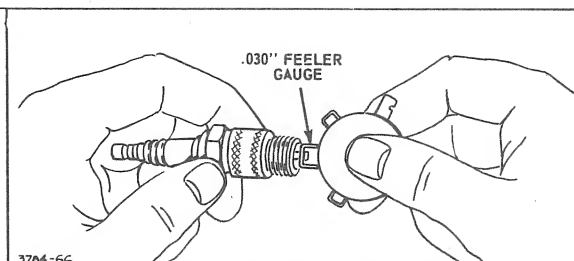
Clean and Adjust Contact Points

## 7 CLEAN SPARK PLUG — Clean and reset gap at .030" every 100 hours of operation.

**CAUTION:** Blast cleaning of spark plugs in machines that use abrasive grit is not recommended. Spark plugs should be cleaned by scraping or wire brushing and washing with a commercial solvent or gasoline.

## 8 DRAIN FUEL TANK AND CLEAN FUEL FILTER

Loosen thumb screw below filter bowl. Remove and clean filter bowl and screen. Open shut-off valve to see if fuel flows freely from the tank. **IMPORTANT:** If you find a gummy, varnish-like substance use alcohol or acetone to dissolve it.



Clean and Set Spark Plug

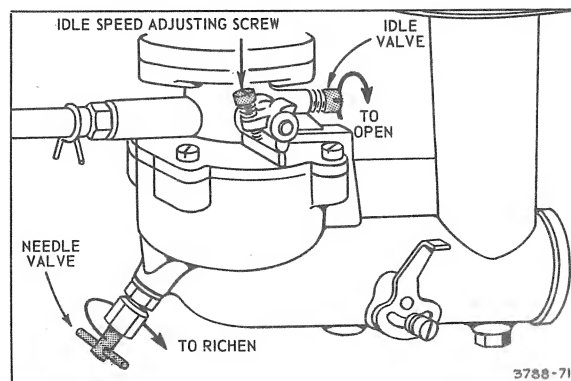
## CARBURETOR ADJUSTMENTS

Minor carburetor adjustment may be required to compensate for differences in fuel, temperature, altitude and load.

### Initial Adjustment

Turn needle valve clockwise until it just closes. — **CAUTION:** Valve may be damaged by turning it in too far.

Now open needle valve 1-1/2 turns counterclockwise. Close idle valve in same manner and open it 1/2 to 3/4 turns. This initial adjustment will permit the engine to be started and warmed up prior to final adjustment.



**Final Adjustment** Turn needle valve in until engine misses (lean mixture), then turn it out past smooth operating point until engine runs unevenly (rich mixture). Now turn needle valve to the mid-point between rich and lean so the engine runs smoothly. Hold throttle at idle position, set idle speed adjusting screw until fast idle is obtained (1200 RPM). Hold throttle in idle position and turn idle valve in (lean) and out (rich) until engine idles smoothly. Then reset idle speed so that engine idles at 1200 RPM. Release throttle — engine should accelerate without hesitation or sputtering. If engine does not accelerate properly, re-adjust needle valve to a slightly richer mixture.



## GOVERNOR SPEED ADJUSTMENTS

The governor controls the engine speed from idle through the full operating range. Idle speed should be no lower than 1000 RPM and top no load speed should be no higher than 3800 RPM. See illustration to adjust governor.

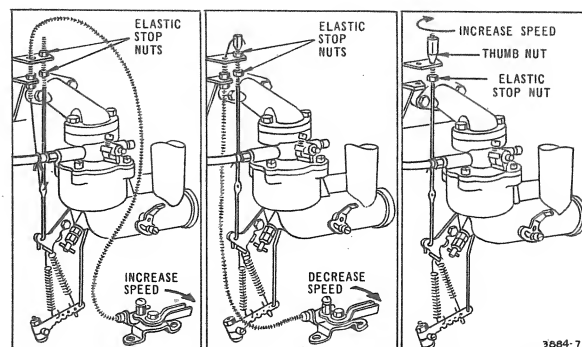
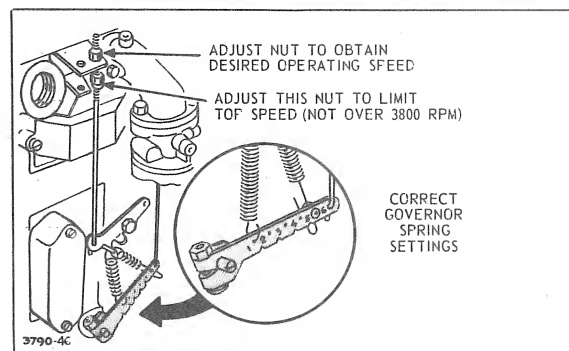
### Governed Idle Speed Adjustment

The shorter spring keeps the engine on governor, even at idle speed. If moderate loads are applied at idle, the engine will not stall.

First make final carburetor mixture adjustments. Then place remote control in idle position. Hold throttle shaft in closed position and adjust idle speed screw to 1000 RPM. Release the throttle. With remote control in idle position, adjust upper elastic stop nut to 1200 RPM.

### REMOTE SPEED CONTROL ADJUSTMENT

Engine speed is controlled by movement of the control lever. To adjust: Move control lever to HIGH speed position. Loosen screw on swivel. Move wire through swivel until desired operating speed is obtained. Retighten swivel screw, bend loose end of wire around swivel. Cut off excess wire.



These engines are single cylinder, L-head, air-cooled type

### Model Series 243431 to 243434

Bore . . . . .	3 1/16"
Stroke . . . . .	3 1/4"
Displacement . . . . .	23.94 cu. in.
Horsepower . . . . .	10.0 max. @ 3600 RPM
Torque (Ft. Lbs.) . . . . .	16.75 max. @ 2400 RPM

The horsepower ratings listed above are established in accordance with the Society of Automotive Engineers Test Code-J607. For practical operation, the horsepower loading should not exceed 85% of these ratings. Engine power will decrease 3 1/2% for each 1000 feet above sea level and 1% for each 10° above 60° F.

### TUNE-UP SPECIFICATIONS

Spark Plug Type	A.C.	Autolite	Champion
Short Plug	CS-45	A7N	CJ-8
Long Plug	GC-46	A71	J-8
Spark Plug Gap . . . . .	.030"		
Ignition Point Gap . . . . .	.020"		
Intake Valve Clearance . . . . .	.007" - .009"		
Exhaust Valve Clearance . . . . .	.017" - .019"		

## STORAGE INSTRUCTIONS

Engines stored for over 30 days should be completely drained of fuel to prevent gum deposits forming on essential carburetor parts, fuel filter, fuel lines and tank.

- Remove filter bowl, open shut-off valve and drain tank completely.
- Replace filter bowl. Leave fuel valve open.
- Operate engine until it stops from lack of fuel.
- While engine is still warm, drain and clean the oil sump. Refill with fresh oil.
- Remove spark plug, pour one ounce of SAE 30 oil into cylinder and crank slowly to spread oil. Replace spark plug.
- Clean dirt and chaff from cylinder, cylinder head fins and blower housing.

Major engine repairs should not be attempted unless you have the proper tools and a thorough knowledge of internal combustion engines.

## Section 6

# SERVICE & REPAIR INFORMATION

If service or repair is needed, contact an Authorized Briggs & Stratton Service Center. To serve you promptly and efficiently, the Service Center will need the model, type and code number on your engine. (See Section 7).

Each Authorized Service Center carries a stock of original Briggs & Stratton repair parts and is equipped with special service tools. Trained mechanics assure expert repair service on all Briggs & Stratton engines.

Your nearest service center is listed in the 'Yellow Pages' under "Engines, Gasoline" or "Gasoline Engines". He is one of over 13,000 authorized dealers available to serve you.



FOR REPAIRS AND SERVICE CONTACT  
THE DEALER DISPLAYING THIS SIGN

## Section 7

# WARRANTY

SAVE THIS SECTION FOR YOUR RECORD

### BRIGGS & STRATTON ENGINE WARRANTY

For ONE YEAR from purchase date, Briggs & Stratton Corp. will replace for the original purchaser, FREE OF CHARGE, any part, or parts, found upon examination by any Factory Authorized Service Center, or by the Factory at Milwaukee, Wisconsin, to be DEFECTIVE IN MATERIAL AND/OR WORKMANSHIP.

All transportation charges on parts submitted for replacement under this Warranty must be borne by purchaser.

*There is no other Warranty express or implied. Briggs & Stratton Corp. shall in no event be liable for consequential damages.*

BRIGGS & STRATTON CORP.

*V. I. Shiely*

V. R. SHIELY - PRESIDENT

NOTE: The Briggs & Stratton Engine Warranty does not cover breakage of parts or damage to parts due to abuse or failure to follow the recommended maintenance procedures. The warranty also excludes any accessories, controls or equipment which are not manufactured by Briggs & Stratton Corporation.

If warranty service is needed contact your nearest Authorized Service Center. For Prompt Attention your center will need to know the engine model, type and code number, the trouble experienced and the total number of hours the engine has run. If you differ with the decision of a Service Center on a warranty claim, ask the Service Center to submit all supporting facts to the Factory for review. If the Factory decides that your claim is justified, you will be fully reimbursed for those items accepted as defective.

FILL IN THE REQUIRED INFORMATION FOR YOUR RECORD:

(See Decal on Blower Housing for Model, Type and Code Number)

Engine Model No. \_\_\_\_\_ Type No. \_\_\_\_\_ Code No. \_\_\_\_\_

Dealer Purchased From \_\_\_\_\_ Date \_\_\_\_\_

Type of Equipment \_\_\_\_\_

Name or Trademark of Equipment Manufacturer \_\_\_\_\_

BRIGGS & STRATTON ENGINES ARE MADE UNDER ONE OR MORE OF THE FOLLOWING PATENTS:

2,669,322	2,796,453	3,114,851	3,149,618	3,194,224	3,252,449	DESIGN
2,693,789	2,999,491	3,116,433	3,165,094	3,236,937	3,276,439	D-191,806 D-196,017 D-197,175 D-213,476
2,693,791	2,999,562	3,144,097	3,168,936	3,242,741	3,378,099	OTHER PATENTS PENDING
					3,415,237	